Conservation Assessment for Catinella exile

USDA Forest Service, Eastern Region

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This document is undergoing peer review, comments welcome

This Conservation Assessment was prepared to compile the published and unpublished information on the subject taxon or community; or this document was prepared by another organization and provides information to serve as a Conservation Assessment for the Eastern Region of the Forest Service. It does not represent a management decision by the U.S. Forest Service. Though the best scientific information available was used and subject experts were consulted in preparation of this document, it is expected that new information will arise. In the spirit of continuous learning and adaptive management, if you have information that will assist in conserving the subject taxon, please contact the Eastern Region of the Forest Service - Threatened and Endangered Species Program at 310 Wisconsin Avenue, Suite 580 Milwaukee, Wisconsin 53203.

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EXECUTIVE SUMMARY

This is a draft Conservation Assessment providing a summary of readily available information on the distribution, ecology, habitat and population biology of *Catinella exile*, a terrestrial snail, in the Great Lake States. This document was compiled to assist the writing of the Conservation Assessment for the Niagara Escarpment Community.

Catinella exile and eight additional species including *Vertigo morsei* and *Vertigo paradoxa* are among the most restricted animal taxa in North America and have been recommended for Federal endangered species protection (Frest 1991, Nekola 1997). The very limited range and few number of known populations warrant federal endangered species protection (Nekola and Frest 1996).

This land snail, a presumed glacial relict (Nekola 1997) was first described by Leonard in 1972 from Pleistocene era sediments (M. Hoggarth, personal communication 2001). It has been taken from Indiana and Illinois (M. Hoggarth, personal communication 2001). It was thought to be extinct but was first found extant in 1986. It has been recorded in eighteen northeastern Iowa sites (Nekola 1996) and two sites in Wisconsin. This species occurs in Michigan's Upper Peninsula (Nekola 1998b) where it has been found on a limestone bedrock beach with seepage areas, shallow pools, and a ground cover dominated by various *Carex spp*.; and cobble beach with *Carex* turf in open marl flats (Nekola 1998b).

Generally, threats to this and other gastropod species are loss of habitat to development, agriculture and some types of forestry management (Frest 1991, Nekola and Frest 1996, Nekola 1998b). In areas with land snail populations, forest clearing has negative impacts as well as any activities that may alter groundwater flow (Nekola 1998a).

There is very little information published on this species. *Catinella exile* is not listed as Threatened, Endangered or Special Concern for any state in the Great Lakes Region.

All potential habitats have not been surveyed to determine presence of this species. Research is needed on population viability and life history information.

ACKNOWLEDGEMENTS

Information was provided by the following individuals: Dr. Michael Hoggarth, Associate Professor and Chair, Dept. of Life and Earth Sciences, Otterbein College, Westerville, Ohio. Laura Hutchinson, Library Services Leader, North Central Research Station in St. Paul Minnesota conducted a literature search on this species. Dave Cuthrell, Associate Program Leader Zoology, Michigan Natural Features Inventory. Julie Williams compiled the State Endangered, Threatened and Sensitive Species lists for the majority of the states within the continental U.S. and Canadian provinces.

NOMENCLATURE AND TAXONOMY

Scientific name: *Catinella exile* (Leonard, 1972)

Subspecies: None

Common name: Pleistocene Catinella

Order: tylommatophora

Family: Succineidae

Synonym (s): There are no synonyms

DESCRIPTION OF SPECIES

The shell of this species measures 4.9 mm (Nekola and Frest 1996). This species is similar to *Catinella avara* but can be distinguished by its deeper orange-colored, more elongated (at least 1.9 times as tall as wide), and smaller (less than 7 mm) shell (Nekola 1998b).

LIFE HISTORY

Not documented.

HABITAT

In Iowa, *Catinella exile* was most often found in leaf litter under *Salix candida* and in moist depressions on open fen mats (Nekola and Frest 1996). In Wisconsin it was found to occur in hyper-calcareous (marl) fens and cobble beach habitats. The fen where this species was found was dominated by stunted white cedars with the herbs *Rhynchospora capillacea, Lobelia kalmii* and *Parnassia glauca* (Nekola and Frest 1996). This cobble beach occurrence was the first documented in a non-fen habitat (Nekola 1996). Additional cobble beach occurrences have been found since in Michigan's Upper Peninsula. In Nekola's 1998 inventory of the Niagara Escarpment and Keweenaw Volcanic Belt in Michigan's Upper Peninsula this species was found on a limestone bedrock beach with seepage areas, shallow pools, and a ground cover dominated by various *Carex spp*.; and in association with cobble beach with *Carex* turf in open marl flats (Nekola 1998b). *Catinella exile* has also been found at a fen in the Upper Peninsula (Nekola 1998b).

DISTRIBUTION AND ABUNDANCE

Catinella exile has been found in Indiana and Illinois (M. Hoggarth, personal communication 2001), Iowa and Wisconsin (Nekola and Frest 1996) and Michigan Upper Peninsula (Nekola 1998b). NatureServe (2001) also lists Ontario Canada. Nekola (1998b) felt additional occurrences of this species may be found at rich fen sites in the

Lower Peninsula of Michigan as the sites with highest potential in the Upper Peninsula have already been surveyed.

Status in the Great Lakes Region

Table 1. State Ranks for *Catinella exile*

State	State Threatened/Endangered or Special Concern Listing	State/Province Heritage Status Ranks
Illinois	Not listed as T/E or Special Concern	Not ranked
Indiana	Not listed as T/E or Special Concern	Not ranked
Michigan	Not listed as T/E or Special Concern	S2
Minnesota	Not listed as T/E or Special Concern	Not ranked
New York	Not listed as T/E or Special Concern	Not ranked
Ohio	Not listed as T/E or Special Concern	Not ranked
Ontario	Not listed as T/E or Special Concern	S1
Pennsylvania	Not listed as T/E or Special Concern	Not ranked
Wisconsin	Not listed as T/E or Special Concern. Suggested Wisconsin status: endangered (Nekola and Frest 1996)	S2

State ranks: S1=critically imperiled; extreme rarity or because of some factor of its biology making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000). S2= Imperiled: rarity or because of other factors making it very vulnerable to extirpation from the state. Typically 6 to 20 occurrences or few remaining individuals (1,000-3,000).

The global heritage status rank for this species is G1G2, it's rounded global heritage rank is G1 (NatureServe 2001). Global rank is based on populations and occurrences around the globe. G1 is extremely rare; usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction (NatureServe 2000).

There are no other states this species is listed. State status information was not located for Alaska, Florida, Georgia, Idaho, Kansas, Kentucky, Maine, Maryland, New Hampshire, New Jersey, North Carolina, Rhode Island, Tennessee, Texas and West Virginia.

Table 2. *Catinella exile* Occurrence in the Great Lake States by County, State and Year*

State	County of Occurrence	Number of Occurrences and Year
Illinois	Not tracked by Natural Heritage in this state.	
Indiana	Not tracked by Natural Heritage in this state.	
Michigan	Chippewa County Delta County Mackinac County	1 occurrence. 1 occurrence. 1 occurrence. Occurrence info. from Nekola 1998b. This species is not tracked by Natural Heritage in this state.
Minnesota	Not tracked by Natural Heritage in this state.	
New York	Not tracked by Natural Heritage in this state.	
Ohio	Not tracked by Natural Heritage in this state.	
Ontario	Not tracked by Natural Heritage in this province.	
Pennsylvania	Not tracked by Natural Heritage in this state.	
Wisconsin	Door County	2 occurrences, 1994 (Nekola and Frest 1996). This species is not tracked by Natural Heritage in this state.

County occurrence information from Michigan Natural Features Inventory, Michigan County Element List-September 1999, Wisconsin Natural Heritage Program, Rare Species and Natural Communities, NHI Working List by County, Indiana Natural Heritage Data Center, List of Endangered, Threatened , and Rare Species by County, November 16, 1999, Ontario Natural Heritage Information Centre, Rare Species Query by County query ran 1/9/01.

Iowa also has at least six counties with occurrence of this species (Nekola and Frest 1996).

POPULATION BIOLOGY AND VIABILITY

Not documented.

POTENTIAL THREATS AND MONITORING

Present or Threatened Risks to Habitat or Range

Generally, threats to this and other gastropods include anthropegenic (highway corridors, railroad right-of-ways) and other disturbances (Nekola 1998b). Generally, sites providing habitat for land snail communities are being lost to development, agriculture and forestry management (Frest 1991, Nekola and Frest 1996, Nekola 1998b). In areas with a population of land snails, forest clearing has negative impacts as well as any activities that may alter groundwater flow (Nekola 1998a). Acid rain may be a threat to this species (D. Cuthrell, personal communication 2001). Habitat has been altered at one location in Michigan by elevated water levels due to a highway (Nekola 1998b).

Table 3. Threats or Risks to Catinella exile and Its Habitat by Forest

Forest	Risk or Threat
Chequamegon-Nicolet	Not on RF Sensitive Species list for the Cheq-Nicolet.
Chippewa	Not on RF Sensitive Species list for the Chippewa.
Hiawatha	Much habitat remains unsurveyed. Habitat not directly impacted by management actions. Management guidelines of the site where found will protect the known population on the Hiawatha.
Huron-Manistee	Not on RF Sensitive Species list for the Huron-Manistee.
Ottawa	Not on RF Sensitive Species list for the Ottawa.
Superior	Not on RF Sensitive Species list for the Superior.

Disease or Predation

None documented. This species is too small to be preyed on by mammalian predators (D. Cuthrell, personal communication 2001)

Inadequacy of Existing Regulatory Mechanisms

None documented.

Other Natural or Human Factors Affecting Continued Existence of Species

None documented.

SUMMARY OF LAND OWNERSHIP & EXISTING HABITAT PROTECTION

In Forest Service Region 9, this species is only known to occur on the Hiawatha National Forest at one location. This site is a candidate RNA and will afford protection from motorized use and vegetation management. There are two additional locations found in the Upper Peninsula of Michigan one is on State Forest Land. Ownership was not recorded for all sites.

SUMMARY OF EXISTING MANAGEMENT ACTIVITIES

None known

PAST AND CURRENT CONSERVATION ACTIVITIES

None known

RESEARCH AND MONITORING

Existing Surveys, Monitoring and Research

Dr. Jeffery Nekola surveyed this species along with other snail species and reported findings in Land Snails of Door Peninsula Natural Habitats, Final Report Wisconsin Chapter The Nature Conservancy and a study for the Michigan Department of Natural Resources Nongame Wildlife Fund, Terrestrial Gastropods Inventory of the Niagaran Escarpment and Keweenaw Volcanic Belt in Michigan's Upper Peninsula. The National Biological Information Infrastructure (NBII) was searched for this species at http://search.usgs.gov/nbii/query, no matches were found. A query on *Catinella exile* conducted at North Central Research Station found no research articles on this land snail.

Survey Protocol

Samples are collected from various habitats, larger land snails are collected by hand and placed in plastic snap vials. Four liter litter samples are used to collect smaller taxa. At woodland sites, concentrate collections at places of abundance of larger snails, along the base of cliffs, rocks, trees, soil covering ledges or at microclimates such as cold air vents on a cliff face. In open sites collect small blocks of turf (ca 125 cm3) or loose soil and leaf litter accumulations under or adjacent to cobbles, boulders or shrubs (Nekola 1998b) or from hummock sides, undisturbed places or swales (Nekola and Frest 1996). Samples could also be taken under shrubs (Nekola and Frest 1996). At the lab, use a low-temperature soil oven to slowly and completely dry the samples. Once dry, soak the samples in water for 3-24 hours and sieve. Use a neutral-brown background, binocular microscope and sable brush to separate shells for identification (Nekola 1998b).

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LIST OF CONTACTS

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